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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/821,122	03/29/2001	Kavitha Vallari Devara	US 010134	5639

24737 7590 10/05/2006

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EXAMINER

SALTARELLI, DOMINIC D

ART UNIT PAPER NUMBER

2623

DATE MAILED: 10/05/2006

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 09/821,122  
Filing Date: March 29, 2001  
Appellant(s): DEVARA, KAVITHA VALLARI

Devara, Kavitha Vallari  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed September 5, 2006 appealing from the Office action mailed April 5, 2006.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

EP 0 926 894 A1	TRANCHARD	6-1999
SU 2001/0024239 A1	FEDER ET AL	9-2001

6,192,049	SOHRABY	2-2001
7,016,337	WU ET AL	3-2006
5,592,470	RUDRAPATNA ET AL	1-1997
6,567,981	JEFFREY	5-2003

### **(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

#### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 17-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 17-20 are directed towards a signal bearing a data stream. For claimed limitations to comprise statutory subject matter, "The claimed invention as a whole must accomplish a practical application. That is, it must produce a "useful, concrete and tangible result." State Street, 149 F.3d at 1373, 47 USPQ2d at 1601-02." see MPEP 2106. First, a claimed signal is clearly not a "process" under § 101 because it is not a series of steps. The other three § 101 classes of machine, compositions of matter and manufactures "relate to structural entities and can be grouped as 'product' claims in order to contrast them with process claims." 1 D. Chisum, Patents § 1.02 (1994). The three product classes have traditionally required physical structure or material. A claimed signal has no physical structure, does not itself

perform any useful, concrete and tangible result and, thus, does not fit within the definition of a machine. A claimed signal is not matter, but a form of energy, and therefore is not a composition of matter. A manufacture is also defined as the residual class of product. 1 Chisum, § 1.02[3] (citing W. Robinson, The Law of Patents for Useful Inventions 270 (1890)). 56 A product is a tangible physical article or object, some form of matter, which a signal is not. That the other two product classes, machine and composition of matter, require physical matter is evidence that a manufacture was also intended to require physical matter. A signal, a form of energy, does not fall within either of the two definitions of manufacture. Thus, a signal does not fall within one of the four statutory classes of § 101.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 22 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. Claim 22 recites using an electronic program guide, event information tables, and history tables tracking bandwidth utilization as a function of a time of day, wherein the originally filed specification states that use of history tables is

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an alternative to using an electronic program guides, clearly distinguishing them to two distinct embodiments (see applicant's specification, page 16, lines 8-20).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-5, 7, 9, 11-13, 17, and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tranchard et al. (EP 0 926 894 A1, of record) [Tranchard] in view of Feder et al. (US 2001/0024239 A1, of record) [Feder].

Regarding claims 1, 5, 9, 13, and 17, Tranchard discloses a transceiver (fig. 1) comprising:

an input connection receiving an incoming transport stream (multiplexer 4 shown in fig. 1, col. 5, lines 26-46);

an output connection from which a new transport stream is transmitted (modulator 5 shown in fig. 1, col. 6, lines 14-18), said new transport stream include at least portions of said incoming transport stream (only certain portions are filtered out of the stream, col. 8 line 54 – col. 9 line 13);

an adaptive data insertion mechanism (scrambler 1 shown in fig. 1, illustrated in fig. 2, col. 7, lines 8-13) for inserting data within a transport stream

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without destructive disturbance (using packet insertion unit 25 shown in fig. 2, col. 10, lines 18-25) comprising:

a bandwidth estimator producing an estimate of available bandwidth within said transport stream (PID counter 21 shown in fig. 2, col. 8, lines 29-42);

a scheduler (packet insertion unit 25 shown in fig. 2) prioritizing and scheduling insertion of content to be inserted within said transport stream based upon said estimate of available bandwidth of said insertion content obtained from a source separate from said incoming transport stream (col. 10, lines 18-56); and

an insertion unit (packet insertion unit 25 shown in fig. 2) inserting scheduled insertion content within said transport stream by replacement of selected replaceable content within said transport stream to form a new transport stream if sufficient bandwidth is available (only null packets are being replaced, thus, content is only inserted insomuch as there is available bandwidth for said insertion, col. 10, lines 18-25).

Tranchard fails to disclose inserting content based upon the required insertion bandwidth and producing an estimate of future available bandwidth within said transport stream from future programming to be transmitted by said transport stream, wherein said sufficient bandwidth being determined from said estimate of future available bandwidth and said required insertion bandwidth.

In an analogous art, Feder teaches storing the bandwidth requirements for particular programming, so that said values may be used in better predicting future bandwidth considerations (paragraphs 371-373) and inserting content

based upon available bandwidth (allocation of bandwidth for different services based on needs, paragraph 367, 368, and 373).

It would have been obvious at the time to a person of ordinary skill in the art to modify the data insertion mechanism of Tranchard to include storing the bandwidth requirements for programming and inserting content based upon available bandwidth, as taught by Feder, so that said values may be used in better predicting future bandwidth considerations and for dynamic determination of content insertion, as said stored values provide indications of the amount of bandwidth which will be utilized by each piece of content individually and collectively (when added together). This includes the bandwidth utilized by content in transmission and content to be inserted, wherein the content to be inserted is associated with the required bandwidth and the content in transmission at a future time is associated with the estimate of future available bandwidth.

Regarding claims 3, 7, 11, and 19, Tranchard and Feder disclose the data insertion mechanism, transceiver, method, and data transport stream of claims 1, 6, 9, and 17, wherein said insertion unit (25) replaces selected packets within said transport stream which include one of one or more selected packet type identifiers (PID values) with packets for said insertion content while passing packets which include packet type identifiers other than said selected packet type



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identifiers to for said new transport stream (only the null packets are replaced for insertion of content, Tranchard, col. 10, lines 18-56).

Regarding claims 4, 12, and 20, Tranchard and Feder disclose the data insertion mechanism, method, and data transport stream of claims 3, 11, and 19, wherein said insertion unit (25) replaces null packets (Tranchard, col. 10, lines 18-25) within an MPEG-2 transport stream (Tranchard, col. 4, lines 52-57).

Claims 2, 6, 8, 10, 14-16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tranchard and Feder as applied to claims 1, 5, 9, 13, and 17 above, and further in view of Sohraby (6,192,049, of record).

Regarding claims 2, 6, 10, 14, and 18, Tranchard and Feder disclose the data insertion mechanism, transceiver, method, computer program product, and data transport stream of claims 1, 5, 9, 13, and 17, wherein said bandwidth estimator produces said estimate of future available bandwidth from information regarding current programming transmitted by said transport stream (Feder, paragraph 371), but fail to disclose said bandwidth estimator also produces said estimate of future available bandwidth from periodic bandwidth utilization measurements for said transport stream.

In an analogous art, Sohraby teaches a network routing method wherein bandwidth utilization is periodically measured to ensure a more accurate

prediction of network congestion and available resources (col. 2, lines 25-39 and col. 3, lines 30-38).

It would have been obvious at the time to a person of ordinary skill in the art to modify the data insertion mechanism, transceiver and method of Tranchard and Feder to include producing an estimate of future available bandwidth from periodic bandwidth utilization measurements, as taught by Sohraby, for the benefit of providing a more accurate prediction of available bandwidth that compensates for factors such as network congestion and available resources.

Regarding claim 8, Tranchard, Feder, and Sohraby disclose the transceiver of claim 6, wherein said insertion unit (25) replaces null packets (Tranchard, col. 10, lines 18-25) within an MPEG-2 transport stream (Tranchard, col. 4, lines 52-57).

Regarding claim 15, Tranchard, Feder, and Sohraby disclose the computer program product of claim 14, wherein the instructions further comprise replacing selected packets within said transport stream which include one of one or more selected packet type identifiers (PID values) with packets for said insertion content while passing packets which include packet type identifiers other than said selected packet type identifiers to for said new transport stream (only the null packets are replaced for insertion of content, Tranchard, col. 10, lines 18-56).

Regarding claim 16, Tranchard, Feder, and Sohraby disclose the computer program product of claim 15, wherein said instructions include replacing null packets (Tranchard, col. 10, lines 18-25) within an MPEG-2 transport stream (Tranchard, col. 4, lines 52-57).

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tranchard and Feder as applied to claim 1 above, and further in view of Wu et al. (7,016,337) [Wu].

Regarding claim 21, Tranchard and Feder disclose the data insertion mechanism of claim 1, but fail to disclose said scheduler is further configured to prioritize and schedule said insertion of said insertion content within said transport stream based upon bit rate requirement of said insertion content, priority of said insertion content, and remaining available bandwidth within said estimate of future available bandwidth.

In an analogous art, Wu teaches a data insertion mechanism wherein a scheduler is configured to prioritize and schedule insertion of content within a channel based upon bit rate requirement of said insertion content, priority of said insertion content, and remaining available bandwidth within the channel (col. 13, lines 1-56, wherein the scheduling table provides priority data indicating the priority of content under the constraints of needed versus available bandwidth),

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providing an management of data insertion that does not exceed channel capacity (col. 5 line 55 – col. 6 line 26).

It would have been obvious at the time to a person of ordinary skill in the art to modify the data insertion mechanism of Tranchard and Feder to configure the scheduler to prioritize and schedule insertion of content within a channel based upon bit rate requirement of said insertion content, priority of said insertion content, and remaining available bandwidth within the channel, as taught by Wu, for the benefit of providing management of data insertion that is careful to not exceed channel capacity.

Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tranchard and Feder as applied to claim 1 above, and further in view of Rudrapatna et al. (5,592,470) [Rudrapatna].

Regarding claims 22 and 23, Tranchard and Feder disclose the data insertion mechanism of claim 1, but fail to disclose said future programming information is obtained from an electronic program guide, event information tables, and history tables tracking bandwidth utilization as a function of a time of day.

In an analogous art, Rudrapanta teaches tracking bandwidth utilization as a function of time of day to identify traffic patterns (col. 5, lines 1-25).

It would have been obvious at the time to a person of ordinary skill in the art to modify the data insertion mechanism of Tranchard and Feder to include

tracking bandwidth utilization as a function of time of day, as taught by Rudrapatna, for the benefit of identifying traffic patterns that indicate the usage or need for bandwidth at different times.

Tranchard, Feder, and Rudrapatna fail to disclose said future programming information is obtained from an electronic program guide and event information tables.

Examiner takes official notice that event information tables [EITs] are a standardized form of electronic program guide [EPG] information, as described in the Program and System Information Protocol [PSIP], which provide information on future programming in a standardized format.

It would have been obvious at the time to a person of ordinary skill in the art to modify the data insertion mechanism of Tranchard, Feder, and Rudrapatna to include said future programming information is obtained from EITs (which are the basic components of an EPG), conforming to and effectively utilizing the PSIP specification, which is an industry standard for informing systems of both future and current programming information.

Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tranchard and Feder as applied to claim 1 above, and further in view of Jeffrey (6,567,981).

Regarding claim 24, Tranchard and Feder disclose the data insertion mechanism of claim 1, wherein said mechanism is capable of reducing the

desired quality in order to insert content, (Feder, paragraph 372), but fail to disclose an override unit configured to force the insertion of content even when said sufficient bandwidth is not available.

In an analogous art, Jeffrey teaches including an override unit in a service provider that enables the insertion of content at any time (col. 12, lines 19-22), enabling for the insertion of emergency broadcasts.

It would have been obvious at the time to a person of ordinary skill in the art to modify the data insertion mechanism of Tranchard and Feder to include an override unit configured to force the insertion of content even when said sufficient bandwidth is not available, as taught by Jeffrey, for the benefit of inserting emergency broadcasts, such as, for example, emergency storm warnings.

Regarding claim 24, Tranchard and Feder disclose the data insertion mechanism of claim 1, but fail to disclose an override unit configured to insert further insertion content instead of said scheduled insertion content when said further insertion content has a higher priority than said scheduled insertion content.

In an analogous art, Jeffery teaches including an override unit in a service provider that enables the insertion of higher priority content at any time (col. 12, lines 19-22), enabling for the insertion of emergency broadcasts.

It would have been obvious at the time to a person of ordinary skill in the art to modify the data insertion mechanism of Tranchard and Feder to include an

override unit configured to insert further insertion content instead of said scheduled insertion content when said further insertion content has a higher priority than said scheduled insertion content, as taught by Jeffrey, for the benefit of inserting emergency broadcasts, such as, for example, emergency storm warnings.

#### **(10) Response to Argument**

##### **I. The Rejection of Claims 1, 3-5, 7, 9, 11-13, 17, and 19-20 Under 35**

##### **U.S.C. 103(a) Being Obvious Over Tranchard in view of Feder Should be Reversed.**

First, appellant points out how Tranchard does not teach "prioritizing and scheduling insertion of insertion content to be inserted within said transport stream *based upon said estimate of future available bandwidth and required insertion bandwidth of said insertion content*," (appeal brief, page 7). However, this is simply in accord with the examiner's position as described in the office action mailed on April 5, 2006 regarding claims 1, 5, 9, 13, and 17.

Second, appellant then claims that Feder "does not teach or suggest scheduling insertion" and that Feder's method of bandwidth allocation "is completely unrelated to the insertion of content." (appeal brief, page 7).

In response, the examiner first must note that it is Tranchard that teaches *scheduling* insertion. Tranchard's deficiency is in considering future bandwidth estimates and required bandwidth of insertion content when *scheduling* the insertion of content. Second, Feder is in fact concerned exclusively with the insertion of content based upon future bandwidth availability estimates and

required insertion bandwidth of insertion content. Feder teaches there is a total available bandwidth available for the delivery of a multitude of services (paragraph 0366 "In a typical cable distribution network, bandwidth must be allocated between many services"), into which content is inserted (paragraph 0366, "Preferably, a controller 92 assigns bandwidth portion to different ones of the services."). There are bandwidth limitations placed upon different services based on the users to which the services are intended (paragraph 0369, wherein some users have paid for a guaranteed minimum of bandwidth, lessening the amount of bandwidth that is available for users who have not paid for said minimum). Therefore, when inserting content into the total available downstream bandwidth (paragraph 0367, "statistical multiplexing of bandwidth"), there is a need to adjust the insertion of some content in favor of other content in order to preserve the bandwidth limitations in place (paragraph 0372, where content is adjusted to fit the bandwidth restrictions). Feder thus teaches a greatly improved form of bandwidth management in a content distribution environment which addresses issues found in cable distribution environments that Tranchard does not even mention.

Next, appellant states "Because Feder's system sets bandwidth based on current, or, in this case, anticipated needs, Feder actually determines future bandwidth rather than estimating it." (appeal brief, page 8). However, the '*anticipated needs*' is the future bandwidth estimate upon which the system acts when inserting content into the downstream.



Tranchard discloses a very basic and straight forward system for inserting content into a packet stream which is simply silent regarding the complications practitioners in the art must deal with when broadcasting content over a television distribution network regarding the allocation and management of bandwidth. Tranchard simply assumes there will always be null packets for replacement and there will always be enough of said null packets in order to eventually transmit all the secondary content. Feder addresses the more complicated issues of bandwidth management, because in reality, there will not always be sufficient bandwidth for all services to be delivered in time and some content has priority over others for varying reasons. Feder provides an expanded and more robust bandwidth management system that would improve the system disclosed by Tranchard by addressing these real world concerns, allowing the insertion unit of Tranchard to more intelligently insert content.

Lastly, appellant states claim 17 is allowable for the same reasons as set forth regarding claim 1, and thus the examiner will rely on the responses above.

II. The Rejection of Claims 2, 6, 8, 10, 14-16, and 18 Under 35 U.S.C. 103(a) Being Obvious Over Tranchard in View of Feder and Further in View of Sohraby Should Be Reversed.

Here appellant states claims 2, 6, 8, 10, and 14-17 depend on claims 1, 5, 9, 13, and 18, and therefore relies upon the arguments presented regarding the independent claims.

III. The Rejection of Claim 21 Under 35 U.S.C. 103(a) Being Obvious Over Tranchard in View of Feder and Further in View of Wu Should Be Reversed.

Here appellant states claim 21 depends on claim 1, and therefore relies upon the arguments presented regarding the independent claim.

IV. The Rejection of Claims 22 and 23 Under 35 U.S.C. 103(a) Being Obvious Over Tranchard in View of Feder and Further in View of Rudrapatna Should Be Reversed.

Here appellant states claims 22 and 23 depend on claim 1, and therefore relies upon the arguments presented regarding the independent claim.

V. The Rejection of Claims 24 and 25 Under 35 U.S.C. 103(a) Being Obvious Over Tranchard in View of Feder and Further in View of Jeffrey Should Be Reversed.

Here appellant states claims 24 and 25 depend on claim 1, and therefore relies upon the arguments presented regarding the independent claim.

VI. The Rejection of Claims 17-20 Under 35 U.S.C 101(a) for Claiming Unpatentable Subject Matter Should Be Reversed.

First, appellants contend the examiner's statement that the claims do not fall under one of the four statutory classes of 101 by claiming the signal is a manufacture defined as statutory in MPEP 2106.IV.B.1(c) (appeal brief, pages 13-14).

In response, the examiner is compelled to reject claims 17-20 under 35 U.S.C. 101(a) under the direction of Interim Guidelines set forth by the office which supercede the MPEP and are currently in effect as of the writing of this Examiner's Answer. These guidelines state on page 56, regarding the definition of the term 'manufacture'. "These definitions require a physical substance, which a claimed signal does not have." Therefore a claimed signal is not considered a manufacture and thus the claimed signal of claims 17-20 is not considered a manufacture.

Second, appellants state that, at worst, each of the rejection claims recite a signal have functional descriptive material as that term is defined in the MPEP, quoting 2106 IV.B.1 (b), and that the examiner has not performed the requisite considerations to determine if the claimed subject matter is functional or non-functional (appeal brief, pages 14-15).

In response, the examiner is again acting in accordance with the Interim Guidelines currently in effect. These guidelines state on page 54 "Moreover, it does not appear that a claim reciting a signal encoded with functional descriptive material falls within any of the categories of patentable subject matter set forth in 101."

Third, appellants state that the specification provides both a practical application and a tangible result of the claimed signal (appeal brief, pages 15-16), again referring to MPEP 2106.IV.B.1 (c).

However, as stated previously, the examiner must act in accordance with the Interim Guidelines which state on page 57, regarding signal claims of the type claimed in claims 17-20 "These interim guidelines propose that such signal claims are ineligible for patent protection because they do not fall within any of the four statutory classes of 101."

VII. The Rejection of Claim 22 Under 35 U.S.C 112 for Containing Subject Matter Not Described in the Specification Should Be Reversed.

Here appellant claims that the examiner asserted the originally filed specification distinguishes history tables and electronic program guides as two distinct embodiments when making the 112 rejection (appeal brief, pages 17-18).

In response, the examiner mistakenly distinguished between history tables and program guides in the office action, and originally intended to distinguish between history tables and system information tables. The specification does use an inclusive and/or statement between the system information tables and the electronic program guide, but the specification clearly distinguishes that system information tables and history tables are utilized in different environments (appellant's originally filed specification, page 16, lines 17-20). Claim 22, which was added in the amendment submitted on February 21, 2006, conversely

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attempts to claim both system information tables and history tables to be used concurrently. Therefore the original rejection is maintained.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.


For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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